

Astronomy in Mithilā

(10th century A.D. to 15th century)

Parmeshwar Jha

Mithilā has been the centre of Sanskrit learning since time immemorial. It was for long a seat of Vedic and Upaniṣadic studies. Notable contributions in different branches of knowledge have been made by the great scholars of the land. Several attempts have been made in the past to take stock of philosophical and allied literature of Mithilā, but a very few efforts have been made to bring to light its astronomical literature.¹ The aim of this paper is to present before the reading public a comprehensive account of the literary output of Mithilā in the discipline of Jyotiṣa during the period ranging from the 10th century A.D. to 15th century.

Mithilā has been the land of yajñas. For the performance of yajñas and religious rites it is very essential to have the knowledge of exact time (muhūrta) and positions of different planets. Religious practices and observances also require a correct knowledge of times of risings and settings of the sun and the moon and of the occurrences of solar and lunar eclipses. Accurate calculation of time, motion of planets, prediction of eclipses etc. are some of the important aspects of Jyotiṣa and as such, religious affairs of Mithilā are in various ways connected with Jyotiṣa. Moreover, Jyotiṣa is supposed to be the most important of all the six aṅgas (auxiliary studies) of the Vedas² and hence for the

1 Dibrar Research Society, Patna has done a commendable work in this direction. The search for Sanskrit Mss in Bihar and Orissa was undertaken by the Society in 1912 and a Descriptive Catalogue of Mss in Mithilā was published in four volumes, out of which Vol. III contains Jyotiṣāśāstra Mss which are rich and varied and are 432 in number.

2 यथा विश्वं समुत्पन्नं वायुमन्तः स्पर्शो यथा ।
आवेगोऽपि वायुमन्तः पृथिवीं (पृथिवीं) पृथिवीं विनाम् ।

—Vedāṅga Jyotiṣa, edited by Dr. R. Shamastel, 1924, Myraa Śloka-4.

correct interpretation of the Vedas it is essential to have the good knowledge of astronomy. As Mithila has been the seat of Vedic studies from very early times, there must have been the tradition for studying the twin disciplines of astronomy and mathematics. The first glimpse of science of astronomy in the land is believed to have been found in the works of Yajñavalkya (c. 2000 B.C.), a contemporary of emperor Vikrama of Mithila. A number of astronomical elements and constants have been used by him in his renowned works, viz. Yajñavalkya Smṛti³ and Śatapatha Brāhmaṇa⁴. Thus it seems that the discipline of astronomy developed in Mithila at least with Yajñavalkya. Since then Jyotiṣa has remained a favourite subject for Mithila scholars. A long list of writers as well as the works on Jyotiṣa is available. The wealth of material as found in Mithila during the period under consideration is presented as far as possible, in a chronological manner in the following pages.

Dāka

Dāka or Dhāgha is famous in the whole of north India for his astronomical Vākya. He is supposed to have lived in the 10th century A.D. or a bit earlier. There are sufficient grounds to believe that Dāka belongs to Mithila⁵. It has been shown that Dāka has written his Vākya in Mithilī (Avahatṭa) and a number of later Mithila scholars, viz. Candehara, Harapada Thākura, Mahārājadhīraja Śuktanākara Thākura and others have quoted him as an authority on astronomy.⁶ Whether Dāka has written a separate treatise on astronomy is not definite, but from the studies of his Vākya it is clear that he is a notable scholar on Phalita Jyotiṣa. It is believed that his works are based on some of the old Jyotiṣa works, viz., Kaiyapa Saṁhitā, Nārada Saṁhitā and Mahārta-sināsmṛti. A number of Vākya-

3 I. 117-18.

4 IX. 1. 1. 43 & XII. 1. 2. 1) and for details see P. V. Kane, History of Dharmasāstra, vol. V, 1951, Poona. pp. 244-46, 489-507 and also Dr. G. Prasad, Foundation of Sciences of Ancient India, 1963, Delhi, pp. 77-78 & 99-100 and G. B. Dikshita, Bhāratīya Jyotiṣa, 1963, Lucknow, pp. 150-52 & 180-81.

5 Cf. Pt. Jivansud Thakur, Mithila Dāka, 1949, Darabhangā, Patna.

6 This, pp. 4-5 & 13.

relating to different aspects of astronomy are ascribed to him.* These Vahyas are found to be in connection with Rāsi, Mūhūrta, Śikhiyoga, Dāṣṭha dīkṣā, Aṣṭa, Candra-Vicāra Nindita yoga, Tārā Vicāra, Candra-phala, Yāra, Grahāya, Grahāya Dharma, etc. These are found to be useful in day-to-day workings and hence are very popular, even these days, among the rural masses of Mithila.

Ballalacarya

Ballalacarya, son of Lakṣmīnāya sena and Mahārājadhīrāja of Mithila (whose reign was established in Śaka 1062) composed astronomical treatise namely *Aśvina Sāgara* just after eight years of his coronation i.e., in Śaka 1070 or 1148 A.D. This work is supposed to be the first available work on astronomy in Mithila and has been very much popular since its composition.[†] It is a *Māhātā* or *Saṁhita* grantha and is based on Varāhamihira's *Saṁhita*. Several astronomical and astronomical texts, viz., Garga, Parāśara, Kāśyapa Vaidya Saṁhita, Viṣṇu Dharmottara, Mātya Purāṇa, Bhāgavata, Bhāṣinagupta *Sāra-Saṁhita*, Viṣṇu Candra and Prabhākara have been quoted by him in his work. His description of several heavenly events make us believe that he was not only an author but also an observer of stars and planets.

Caṇḍeśvarācārya

It is believed that Caṇḍeśvarācārya lived in the time of Narasīṅhadeva (son of Gaṅgaḍeva and throne in 1181 A.D.) of Kāṇḍya dynasty. He was a erudite scholar of his age. He has written a book on astronomy namely *Sāra-Saṁhita-Prāśaṅga*[‡] which is a commentary on a famous astronomical treatise *Sāra-Saṁhita*. One copy of the manuscript of this work is still available in the Darbar library of Nepal. This copy is in Mithila character

* *Ibid* & *Dakṣa Vāsanā-Saṁgraha*, published by Dabir Raghunāth Singh, Meadway.

† This work has been first published in 1965 by Prabhakara, Benares. For details, cf. A. Dvivedi, *Gopaka Tarāṅgiṇī*, 1933, Benares, pp. 43-44.

‡ P. Das, *Mithila Tattva-Vimārśa*, 1, 1949, Darbhanga pp. 115-116 and H. P. Sastri, *A catalogue of Palm-leaf and selected paper MSs belonging to the Darbar Library Nepal*, Vol. I, Calcutta, 1905, pp. 132-33.

and describes the commentator as a Maithilī.¹⁰ Cāṇḍeśvarācārya has included the calculation of the Śaka year 1100 or 1178 A.D. in the work and hence he is supposed to be an astronomer of the 12th century.

Cāṇḍeśvara Thākura

Cāṇḍeśvara Thākura, Mahānandika, son of Virdeśvara Thākura and grandson of Devācārya Thākura was Śāndhī Vīrahika of Harī-Simhaśeṇa (who reigned from 1307 A.D. to 1321 A.D.), the last great king of Karama dynasty.¹¹ He was one of the shining luminaries of the time and was a profound scholar of politics, Dharmśāstra and astronomy. He has composed seven Ratanakars on Dharmśāstra, viz., Kṛtya, Dāna, Vyavahāra, Śūdrhi, Pāṇi, Vīraśa and Cāṇḍeśvara, one Ratanakara on politics namely Rājantī Ratanakara¹² and also an astronomical text namely Kṛtya-Chināṁgaṇi which is supposed to be one of the best books on astronomy. The manuscript of the last work is still available in the Sanskrit University, Darabhanḡa.¹³

Jyotiśvara Thākura

Varga-Ratanakara of Jyotiśvara Thākura, the earliest extant work in Maithilī vernacular is supposed to be written in the last quarter of the 13th century or the first quarter of the 14th century.¹⁴ It is a compendium of life and culture in medieval India. It throws a flood of light on the cultural, literary and social aspects of Mithilā before 13th century A.D. The work gives us information about some of the famous astronomical treatises of the period. It is not definite whether Jyotiśvara was himself an astronomer, but this much is evident that he was a man with 'a wholesome all-round interest in life.' Hence he included even some of the facts regarding Jyotiṣa in his monumental work. He draws our attention towards this branch of knowledge in the sub-

10 Ibid, p. 153, colophon.

11 Cf. Dr. Upendra Thakur, History of Mithilā, 1934, Darabhanḡa, pp. 210-21.

12 This has been edited by Dr. K. P. Jyotsnā and published by Bihar Research Society, Patna in 1936.

13 Descriptive Catalogue of Raj. Man. Darabhanḡa, 1960, p. 70, 2. No. 1741.

14 Varga-Ratanakara, edited by B. K. Chatterjee and Babuaji Mishra & published by Royal Asiatic Society of Bengal, Calcutta, 1940, Intro., p. 10.

However, unless further information is forthcoming, no last word can be said regarding authors of these texts.

Haliyudha

Jyotishvara, thereafter presents a list of *phala granthas* viz., *Rajamartandya*, *Haliyudha*, *Vasubandhu*, *Śrīpati Saṁhitā*, *Nanda Saṁhitā*, *Devala Saṁhitā* and *Candra Saṁhitā*.¹⁸ *Rajamartandya* of Raja Bhoja of Dhillā (1000-1055 A. D.) of *Ujjain* (modern) of *Vasubandhu* (a versatile genius of the early 6th century) and *Ratnamālā Saṁhitā* of *Śrīpati* (c. 1030 A. D.) were some of the standard *Saṁhitā* *granthas* which were popular in *Mithilā*. According to *Jyotishvara* *Haliyudha*, too, was an author of a *Saṁhitā* *grantha*. It is now almost certain that *Haliyudha* is a *Mithilā* scholar. P. Laladax Mishra has given a number of evidences in this respect and has established the fact that *Haliyudha*'s dynasty continued in *Mithilā* for a long time and produced a chain of great scholars from *Varanasi* to *Padmaṇḍala*.¹⁹ *Haliyudha* had been in the court of the King of Sena dynasty and was popular as a lexicon writer. *Abhidhāna-Ratnamālā*, a lexicon work and *Brāhmaṇya Sarvasva*, a treatise on *Dharma Śāstra* dealing with *Karmakāṇḍa* are some of his important works. In *Varga-Ratnākara* he is mentioned as an astronomer and an author of an astronomical text, but these days the work is not available. It is believed that *Lakṣmīdhara Bhagya*, *Candrasekharendra*, *Harinātha*, *Raghunandana* *Mishra* and others have either mentioned his name or quoted him.²⁰ *Lakṣmīdhara Bhagya* was the prime minister of *Chandrasekhara* (1114-1115 A.D.) of *Kāśī*, the grand father of *Jayachandra*. Hence it may be concluded that *Haliyudha* must have flourished before *Lakṣmīdhara*, i.e., in the latter part of the 11th century. Thus it seems that his astronomical text written in the 11th century, was popular in *Mithilā* even in the 13th or 14th century but no mention is made about the work after *Jyotishvara*.

18. *Varga-Ratnākara*, p. 17—*संस्कृतस्य दशमसुतस्य सप्तमसुतस्य सप्तमसुतस्य सप्तमसुतस्य*
संस्कृतस्य सप्तमसुतस्य सप्तमसुतस्य सप्तमसुतस्य ।

19. *Mithilā Mishra*, *Mithilā*, V, 3, 1993, p. 23-24.

20. *History and Culture of Indian People*, Vol. 5, p. 231 and 234.

Nothing definite is known about Namia Sakhinā, Devala Sakhinā and Chandra Sakhinā. This much seems to be certain that Namia, Devala²¹ and Chandra were astronomers and authors of some astronomical treatise. Due to unavailability of MS. of their works it is not possible to ascertain whether they belonged to Mithilā or some other parts of India.

Different aspects of calendar-making, viz., Tithi, Vāra, Nakṣatra, Yuga and Karaka and units of time²² prevalent those days in Mithilā are also mentioned by Jyotiśivara. All these informations make us believe that almost all essential aspects of astronomy were in vogue in the land of Mithilā during the time of Jyotiśivara and Mithilā scholars were interested in this branch of knowledge. This is the sacred duty of scholars to trace out the MS. of the lost astronomical works so that the achievements of Mithilā scholars may be assessed correctly in the science of astronomy.

Bhavela

Bhavela (c. 13th century) composed two works on astronomy, viz., (i) *Jātaka-paddhati-guṇadīptakāraṇam*,²³ a commentary on the *Jātaka-paddhati* of Śaṅgati and (ii) *Līlāvati-Vyākhyā*,²⁴ a commentary on *Līlāvati*, a work on mathematics by Bhāskaraśrīya (b. 1114 A.D.). It appears from the preface of the former that the MS. belonged to Thākura family whose ancestor was Raman Thākura and for his sake the commentary was written by Bhavela. Moreover, the date of composition of this work is mentioned as Śaka 1135, i.e. 1263 A.D., and thus Bhavela may be placed in the category of the writers of 13th century A.D.

21. *Rajaratna Ratnakara* of Candakara, edited by K.F. Jajawal, Introduction, p. 28.

22. Devala is mentioned in the *Varaha Samhita* & also in *Aśoka Śāstra* of Ballabha. Whether he is the same Devala is not certain. cf. S.B. Bhattacharya, *op. cit.*, p. 432 and also S. Dhavalikar, *op. cit.*, p. 42.

23. *Varaha-Ratnakara*, p. 24—*पञ्चमहासंख्येयसंज्ञायां तत्रास्ति सप्तमसंख्येयसंज्ञायां सप्तमसंख्येयसंज्ञायां*

24. *Dev. Cat. of MS. in Mithilā*, vol. III, p. 203 and 443.

25. *Ibid.*, p. 382. In the catalogue of Rāj. MS. Darabhangā (a. 70-75) we have a reference of *Līlāvati-Tippasāra* by Bhavela. Probably these two are one and the same work.

Vidyapati

The great poet Vidyapati is supposed to be an able and distinguished scholar of Purāṇas and Smṛtiśāstra. A number of works have been written by him in Sanskrit. He has composed two works on Jyotiṣa also, viz., *Jyotiṣa Darpaṇa*²⁶ and *Varṇakṛpā*. The former deals with the principles of Jyotiṣa while the latter contains various customs and ceremonies of a householder throughout the year. The Mss. of the former is not available at present and hence nothing definite about its contents may be said.

Harapati Thakura

Harapati, the eldest son of Vidyapati, wrote *Vyavahāra Pradīpikā* (*Jivaka*)²⁷, a manual of Jyotiṣa-Śāstra. In this work he calls himself a *Mudrādhikṣaka* (keeper of the royal seal) and explains difficult lines by giving equivalent Maithilī verses. He has quoted even Dāka in this work for the proof of his statement²⁸. Mss. of *Vyavahāra Pradīpikā* is still preserved in the Sanskrit University Library, Darbhanga²⁹.

Haradatta Thakura

Haradatta Thakura of Visaināra family of Saurāṣṭra flourished after Vidyapati and was probably the last purāṇa of that family. Haradatta, according to the genealogy of Vidyapati as presented by Dr. J. K. Mishra,³⁰ was the fifth son of Devāditya, the great-great grandfather of Vidyapati. Whether he is the same Haradatta or some one else is not certain. This much is definite that Haradatta is the writer of two astronomical works, viz., *Gaṇitānubhāsa māhāt*³¹ and *Dāivajñā Bāndhava*.³² *Dāivajñā Bāndhava* seems to be very popular as 19 copies of its Mss. have been found in different parts of Maithilī³³.

26. P. No. 99, col. 382.

27. Des. Cat. of Mss. in Mithila, III, p. 419.

28. श्रीराम नाम (११ वीं) ११ ११ श्रीरामनाम श्रीराम श्रीराम श्रीराम

29. Des. Cat. of Raj. Mss. Darbhanga, p. 70-71.

30. cf. History of Maithilī Literature, Allahabad, 1949, p. 137.

31. Des. Cat. of Mss. in Mithila, III, p. 41.

32. Ibid. p. 169.

33. Ibid. pp. 169-71.

Madhusūdana :

Madhusūdana was the author of *Jyotiṣa-Pradīpāṅkura* and *Bhara* *Prakāśa*, two treatises of *Jyotiṣa-Śāstra*.³⁴ He was the son of Narasimha and grandson of Nāgadvāra of the family of Māṇḍara and has three brothers, Govinda, Narahari and Vāmadeva. He wrote his astronomical work, *Jyotiṣa-Pradīpāṅkura* under the patronage of the king Dhara Śāhna (throne in 1460) of Ohāvara dynasty³⁵ and he, therefore, lived in the first half of the 15th century. We know several Madhusūdanas in medieval Mithila³⁶ but Madhusūdana who was a noted scholar of astronomy and wrote these two astronomical works was of the 15th century.

Mm. Sudhākara :

Mm. Sudhākara, son of Racikara was a versatile scholar. He was well versed in Nyāya and Vyākaraṇa and was also at home in Jyotiṣa. He wrote an astronomical treatise *Ratnāvalī*³⁷ under the patronage of the king Narasimha-deva (died in c. 1460-62) of Ohāvara dynasty. This work had been very much popular among the scholars since its composition. Later Mithilā scholars, viz., Vāspati Mīm, the younger and others have quoted many verses from this work³⁸ and Pradyumna, a direct disciple of Mm. Sudhākara wrote a commentary on it namely *Ratnāvalī-Tīkā* which is still preserved in the Sanskrit University Library, Darabhaṅgā³⁹.

Makaranda (c. 1448) :

Makaranda in 1478 A.D. prepared a table dealing with all elements relating to calendar-making at Kāśī. This is based on the famous astronomical text *Sūrya-Siddhānta*. A number of commentaries have been written on it by scholars of repute, viz., Divākara Dāsa-jña, Vidyavātha, Gokulanātha,

34 Ibid., pp. 274-75 and also cf. I.N. Mishra, *Mithila-Mishra, Maṭhilaśāstra*, p. 93.

35 cf. *History of Medieval Literature*, Allahabad, p. 211.

36 Ibid., pp. 212-13.

37 P. Jha, op. cit., p. 174 and U. Thakur, op. cit., p. 327.

38 P. Jha, op. cit., p. 174.

39 Ibid and also, *Dist. Cat. of Raj. Mus. Darabhaṅgā*, pp. 70-77.

Raghunandana and others. It has been translated in English by Bentley.⁴⁰ This table has been popular all over India and is still prevalent in the land of Mithila. This is not certain whether he belonged to Mithila or to other part of India.

Vācaspati Mîtra, the younger :

Vācaspati Mîtra, the younger, 'the crest-jewel among scholars' and the son-in-law of Bhadrava Śubha (died in 1400 A. D.) of Chinavāra dynasty flourished in the latter part of the 15th century. He was a profound scholar of Vyākaraṇa, Nyāya, Mīmāṃsā and Dharmasūtra and was also an eminent astronomer. He wrote a book *Tithi-Nirṇaya* on *Jyotiṣa*⁴¹ and quoted some verses from the *Ratsavali* of Mra. Sūthākara for the proof of his statements regarding *Samaya-Śuddhi* in his reputed works *Kṛtya-Cintāmaṇi* and *Dvāitya-Nirṇaya*⁴² on *Dharmasūtra*.

Pakṣadhara Mîtra (Jyotiṣa) :

Pakṣadhara Mîtra lived in the court of Raja Bhadrava Śubha of Chinavāra dynasty and was a contemporary of the great poet Vidyāpati. He wrote two astronomical treatises namely *Līlāvati-vyākhaṇa*⁴³ and *Tithi-candrikā*.⁴⁴ The former is a commentary on *Līlāvati*, a mathematical work of Bhāskara-carya (b. 1114 A.D.) and the latter is his original work on *Jyotiṣa*. His third work *Tithi-Nirṇayacandrikā* is a hand book on *Dharmasūtra* dealing with *Tithi-Vyākhaṇa*⁴⁵ *Śūla-Bodha*, a manual of *Jyotiṣa-Sūtra* dealing with the calculation of *Yātrā*, *Vrata-Bodha* etc., is also ascribed to the authorship of Pakṣadhara⁴⁶ but it is not certain whether he is the same Pakṣadhara or some one else.

40 S. B. Dikshita, op. cit., p. 204 and S. Devedti, op. cit., pp. 12-51.

41 cf. R. R. Divedara, *Bihar Through the Ages*, 1959, Bombay, p. 439.

42 P. Ma, op. cit., p. 174.

43 *Bihar Through the Ages*, p. 417.

44 U. Thakur, op. cit., p. 111.

45 Des. Cat. of Mra. in Mithila, I, p. 171.

46 Des. Cat. of Mra. in Mithila, III, p. 430.

Lakṣmidāsa Miśra

Lakṣmidāsa Miśra, son of Vācupati Miśra wrote probably in the year 1500 A.D. (Śaka 1422) a commentary *Ḡaḡita-tattva-Cintāmaṇi*⁴⁷ on the *Siddhānta-Śārentaṅgi* of Bhāskarācārya (b. 1114 A.D.). He has illustrated the principles with several examples and also established the rationale of various rules as propounded by Bhāskarācārya. Thus this commentary is supposed to be a standard work in astronomy. Śaka 1420 has been used as an example for the eclipses and Śaka 1422 has been taken as the calculating year and hence it may be inferred that he flourished in the latter part of the 15th century.

Vīṭhākarācārya

Vīṭhākarācārya wrote a book on astronomy namely *Prāśna Kaumudī*⁴⁸ which is a short treatise in verse on astronomical query and is an original work. He was a court Paṇḍita of a Mithilā King Rāmabhadra-deva of Guavāra family who reigned in L. S. 395.

Besides the above mentioned astronomers there are a number of scholars of Mithilā who either wrote original astronomical texts or composed commentaries on standard works but their dates and personal details are almost entirely unknown. Again there are texts on astronomy which are found to be written by anonymous writers.⁴⁹ Hence there is the need for researches in this regard so that the extensive Jyotiṣa literature produced in Mithilā during the period under consideration may be brought to light. However, on the basis of the materials available so far it may be safely said that Jyotiṣaśāstra has been a favourite of Mithilā scholars from very early times and a large number of astronomical texts, big and small, original as well as commentative have been written by them during the period ranging from the 10th century A.D. to 15th century.



47 Ibid pp. 36-42.

48 Ibid, p. 211.

49 From the Index of authors (Des. Cat. of Man. in Mithilā-p. KVII to XXXI) we see this to show that as many as 111 works on astronomy out of 437 (found in Mithilā) are of anonymous authors.

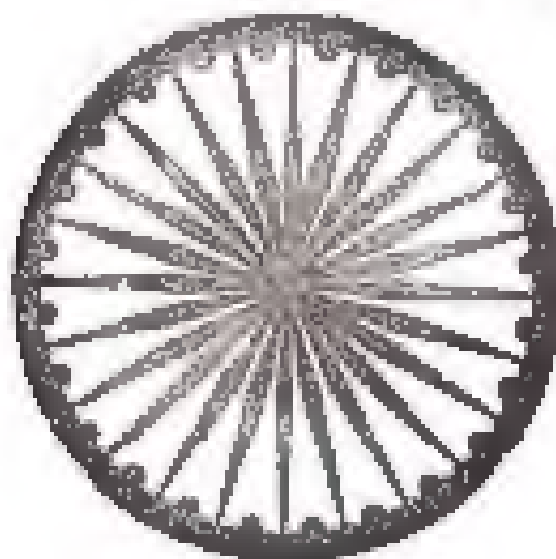
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